

Community Awareness of Emergency Phone Numbers

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Abstract: Knowledge of numbers to call for medical emergencies was compared among communities with three different call numbers: 1) 911; 2) regional seven-digit numbers; and, 3) local seven-digit numbers. Correct responses were 85 per cent in the 911 communities; 47 per cent in areas with regional systems, and 36 per cent in areas with local systems. Persons living adjacent to a 911 area were more likely to believe 911 was the emergency number (28 per cent) than persons not adjacent to 911 areas (12 per cent). (*Am J Public Health* 1981;71:1058-1062.)

Studies of emergency medical services have identified the critical importance of various time factors in delivering effective emergency care.¹ For out-of-hospital cardiac arrest, the time interval from collapse to initiation of cardiopulmonary resuscitation (CPR) and the interval from collapse to provision of definitive care are strongly associated with survival.² Equally important is the length of time it takes the reporting party to reach the proper emergency agency by phone. If a bystander does not know the number to call for medical aid, delay in obtaining help will result and the effect of rapid vehicle responses and prompt citizen CPR will be undermined.

Numerous authors^{3,4} and official federal programmatic guidelines⁵ stress the need for community awareness of emergency phone numbers. The benefits of a 911 emergency number have been widely touted. While few would question the need for rapid access of emergency services, there have been few studies characterizing community awareness of emergency phone numbers. Furthermore, while the benefits of 911 are assumed, there is little evaluation to compare

community awareness of 911 with awareness of a seven-digit phone number.

The purpose of this study was to compare knowledge of emergency phone numbers among communities with several types of systems: 1) 911, 2) a regional seven-digit number, and 3) a local seven-digit number. A "regional" system unites several fire districts under one dispatching center; the same number is used throughout the several districts. "Local" emergency numbers are unique to a particular fire district.

Methodology

The study community was King County, Washington (population 1,200,000 with 500,000 in the city of Seattle and 700,000 in the surrounding suburban and rural areas). There are 41 fire districts and 27 different telephone numbers to call for emergency medical care. In King County, emergency care is provided primarily by fire departments, and the numbers for emergency medical care are those of the fire departments. Often, the emergency numbers differ between neighboring fire districts and the numbers for medical emergencies are different from those used to summon the police, except for communities with 911.

Communities in King County can be grouped into three categories depending on what type of system they have. The first group is 911 which includes the cities of Seattle, Mercer Island, and Renton. Each has its own 911 system. The combined population is 600,000. The second category includes areas which are served by a regional dispatch center with a single seven-digit number which encompasses several fire districts. There are three regional dispatch centers covering a total of 15 fire districts. The third category (local) includes 21 fire districts, each with its own seven-digit number to call.

A stratified random sample of 1,600 names was selected from the phone listings of the study area. Three successive attempts were made to reach an adult at each number; the hour and day varied on each attempt. After three attempted calls with no response, the number was rejected.

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TABLE 1—Response by Type of Emergency Phone System

Response	Type of System					
	911		Regional		Local	
	N	%	N	%	N	%
Correct	144	85†	261	47†	166	36†
911 (when incorrect)	—	—	96	17	87	19
Ambulance	1	0.5	8	1	7	1.5
Physician	—	—	4	0.7	8	2
Hospital or Emergency Clinic	1	0.5	7	1	10	2
Operator	1	0.5	11	2	3	0.5
Did Not Know	23	13.5††	170	30.5††	182	39††
Other	—	—	2	0.4	—	—
Total	170	100	559	99.6	463	100

†p < .01

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Upon reaching an appropriate interviewee, the caller identified himself and asked the following question: "Do you know the number to call in a medical emergency such as a heart attack?" If the respondent replied "the fire department," the interviewer then asked for the phone number. Only answers which actually gave the correct phone number of their fire district or dispatch center were marked correct.

Of 1,600 attempted interviews, there were 31 refusals and 377 were dropped because there was no answer after three attempts. A total of 1,192 interviews were completed. The percentages of refusals and no-contacts were not significantly different throughout the eight areas. Data were analyzed using Chi-Square with Yates correction.

Results

The percentages of correct responses in the study area are shown in Table 1. A greater proportion of those in the 911 areas (85 per cent) knew the correct phone number than in the areas with regional systems where 47 per cent responded correctly. In the areas with local numbers, 36 per cent were correct (Chi-Square: $p < .01$).

Table 1 also shows the kinds of incorrect responses for the three kinds of systems. Another finding was that persons living adjacent to 911 areas were more likely to believe 911 was the emergency number (109 of 388 or 28 per cent) than persons not adjacent to 911 areas (74 of 634 or 12 per cent) ($p < .001$).

Discussion

This survey has shown that communities with 911 systems have a higher correct response rate than those with regional systems and, in turn, communities with regional systems have greater awareness of their numbers than those with local systems. The survey suggests that residing in a 911 community may be beneficial in terms of emergency phone

number awareness but that living adjacent to a 911 community may hamper effective access to emergency services. People in the adjacent areas may not learn the correct number, believing it to be 911. This problem is not a trivial one because there may be inordinate delays when 911 is inappropriately dialed. The delay is estimated at between 30 seconds and two minutes when someone inappropriately dials 911 in areas not covered by a 911 system. In some areas, a call to 911 will result in dead silence and in others a recording is reached. A call to the telephone operator can waste even more time. The operator can make only a guess at the right dispatch center judging from the caller's telephone prefix and address. If the guess is wrong, the call must be relayed to the correct dispatch center, resulting in two wasted steps. Telephone prefix areas and fire district boundaries do not correspond at all, and telephone operators do not have fire district maps at their disposal.

We conclude that communities without a 911 system have poor awareness (less than 50 per cent) of emergency phone numbers. While regional number systems appear slightly better than local systems in terms of community awareness, the knowledge is still far below that in a 911 system. Furthermore, communities adjacent to those with 911 systems may have unique problems due to community misunderstanding of the number to call. Emergency medical service programs must pay serious attention to factors of public awareness if they wish to create a system that allows for rapid access to emergency services. A paramedic unit flashing through the streets does little to compensate for a public with poor awareness of whom to call.

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Children's Ability to Evaluate Television Commercial Messages for Sugared Products

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Abstract: A study of the ability of 120 children to evaluate the cariogenic potential of products presented in commercial television messages was undertaken. Each child was shown commercials for sugar-containing products. The results indicated: 1) grade-related differences exist in a child's ability to evaluate products; 2) no differences between socioeconomic status groups were found in a child's ability to evaluate products; 3) a weak relationship between the level of dental health knowledge and ability to evaluate the products. (*Am J Public Health* 1981;71:1060-1062).

Within the last decade, parent groups, consumer organizations, researchers, regulatory agencies, and marketers have expressed concern about the persuasive power television has on children.¹ Estimates of the number of commercials viewed by young children range between 19,000 and 22,000 commercials per year or about three hours of television advertising every week of the year.²

Advertisers spend an estimated \$500 million per year to televise their commercial messages to children³ and \$80 million alone is spent by cereal companies.⁴ Critics claim that children are being exposed to a steady stream of televised advertising, the major purpose and effect of which is to induce them to consume a wide variety of sugared products,⁵⁻⁹ which are assumed to entail health risks, especially to dental health. A strong relationship between the ingestion of sucrose and dental decay has been well documented.¹⁰⁻¹² The commercials frequently advertised during Saturday morning programming are designed to promote snacking of sugared products between meals. It is the between meal consumption of sugar rich products which is believed to be especially hazardous to dental health.¹³⁻¹⁵

In 1977, Action for Children's Television (ACT), a consumer group, sought corrective action by petitioning the Federal Trade Commission (FTC) for a trade regulation rule to eliminate all food advertising to children on the grounds that it is misleading and unfair.¹⁶

No empirical research has investigated a child's ability to evaluate the relationship between dental health and the sugar-containing products frequently advertised during children's programming. The purpose of this study was to determine whether children viewing television commercial messages for sugared products have the ability to evaluate the cariogenic potential of the products and to relate this ability to age, socioeconomic status (SES) and level of dental health knowledge.

Materials and Methods

Subjects were 120 White children (relatively equal numbers in grades one, three, and six, with half of the sample male and half female) from the Milwaukee, Wisconsin metropolitan area. Fifty-four per cent of the sample was from a school defined by school officials as having high SES background and 46 per cent was from a school defined as having a low SES background. A signed consent form was obtained for all participants.

Children's abilities to evaluate television commercial messages differ according to age.¹⁷⁻³⁰ Socioeconomic status differences also exist in children's understanding of television.^{18,19,31} The child's school was used as an indicator of SES. The child's dental health knowledge was assessed by response to a question on the relationship of sugar to caries: 1) no mention of sugar to caries, 2) mention of sugar to

TABLE 1—ANOVA for Perceived Cariogenicity of a Presweetened Cereal by Grade Level of Children

Grade	X %	N	Groupings*
1	46	39	A
3	70	40	B
6	93	41	C

*Means with different letters are significant at $P < .05$.